ICES STIGMSP REPORT 2011

SCICOM STEERING GROUP ON HUMAN INTERACTIONS ON ECOSYSTEMS (SSGHIE)

ICES CM 2011/SSGHIE:16

REF. SCICOM, ACOM

Report of the Strategic Initiative Group on Marine Spatial Planning (STIGMSP)

20–21 June 2011

Copenhagen, Denmark

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Recommended format for purposes of citation:

ICES. 2011. Report of the Strategic Initiative Group on Marine Spatial Planning (STIGMSP), 20–21 June 2011, Copenhagen, Denmark. ICES CM 2011/SSGHIE:16. 17 pp.

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Executive Summary

The Strategic Initiative Group on Marine Spatial Planning (STIGMSP) met at the ICES Secretariat in Copenhagen on 20–21 June 2011. The meeting was co-chaired by Eugene Nixon (ACOM) and Erik Olsen (SCICOM) and had a total of 12 participants.

The economic status was presented, and at present DKK ~45 000 remain of the initial SIF allocation to the SIASM. The main issues of the meeting was to track progress on the issues raised at the previous STIGMSP meeting in 2010 and the WKCMSP in November 2010 and to plan for future activities and start an initial discussion on how to bring the SIASM to an end.

At WKCMSP in November 2010 it was planned that two papers on MSP should be on a manuscript stage. Both are delayed, but planned to be at a manuscript stage by Q4 in 2011.

Assessing the state of MSP in ICES has been an important goal of SIASM and the results from the analysis of the questionnaires sent to EG Chairs in 2010 together with an analysis of ToRs for SCICOM EGs was presented. It was agreed to continue this analysis during Q3 of 2011.

MSP is under rapid development in the ICES region and many new implementation initiatives and MSP-science projects have been initiated in the last 12 months. A short round-table review of the state of MSP in the ICES region was carried out and reported. The ICES data centre held a presentation on how the ICES GeoServer has been developed and can be used as a tool in bringing ICES data and science into an MSP setting.

In their 2011 report WGMPCZM asked for STIGMSP to review several recommendations: 1) a proposal for a theme session at ASC in 2012 on "*The use and misuse of science in MSP*" was supported with some suggestions for changes. 2) a new focus on the review of methods for capturing fisheries information for inclusion in MSP was discussed and suggested brought further through the SI on MSFD as it is directly relevant to descriptor. 3) a proposal for a workshop on quality assurance (QA) was supported and suggested brought forward as a full proposal to SCICOM as ASC through the SSGHIE. WGMPCZM also proposed a follow-up workshop to the WKCMSP in November 2010, which was treated as a separate agenda item at the STIGMSP meeting (see below).

STIGMSP agreed that there was need for a follow-up workshop to the Lisbon 2010 WKCMSP workshop. A new joint HELCOM, OSPAR and ICES WK is proposed for 2–4 November 2011 in Lisbon (hosted by IPIMAR) with the aim to:

- Demonstrate how HELCOM, OSPAR, and ICES can contribute and cooperate to further development of the process of ecosystem-based marine spatial planning
    - Reinforcing and extending the existing networks of MSP practitioners by sharing knowledge and experience between scientists, managers and planners
    - Test out how ICES Spatial Facility & data from EGs, and similar facilities of other organizations (e.g. HELCOM and OSPAR) can be used in development of an MSP plan

    - How can scientist contribute to the socioeconomic aspects of MSP development (e.g. Stakeholder involvement, setting socioeconomic objectives etc)
- Share knowledge on the development of MSP in the areas
- Build a MSPCZM community of practitioners

The workshop is planned to focus on a case-study (Kattegat) with the aim of developing (parts of) an MSP plan for the area. The participants will play different roles and use the ICES Data Centers GeoServer as the basic tool for carrying out analyses and discussions. This way one can test how ICES can deliver data and products to be used in an MSP development setting, as well as giving the participants useful experiences of sector-specific considerations in developing MSP. The WK will also act as a meeting place for MSP practitioners and scientist and some of the newest developments will be shared and discussed. A full proposal will be developed and presented for SCICOM as ASC in Gdansk 2010.

Lastly, STIGMSP initiated the discussion of an exit-strategy for the SIASM. The SIs were intended to be time-limited actions and STIGMSP recognizes that much of what has been proposed already has been implemented by EGs, in particular WGMPCZM and WGDIM. In addition the ICES Data Center has taken a leading role in providing tools and platforms for making ICES data useful in a spatial planning context. It was therefore suggested that the SIASM should be brought to an end after 2011, but a final decision should be left open until after the November 2011 workshop and the STIGMSP meeting at the end of the workshop.

1 Review of economic status in SIASM (SIF funds):

Erik Olsen informed SIASM that there was approximately DKK 45 000 remaining from the initial DKK 115 000 provided to SIASM from the Strategic Initiative Fund (SIF).

2 Review WKCMSP 2010 Report and progress made on action items

a) Recommendation 1.2.1 Paper to be prepared by Cormier et al on A review of differences between EIA, MSP and Integrated management.

It was reported from the WGMPCZM that there has not been much progress on this but that some initial ideas have been developed along the lines of exploring how to bring science into the ridged planning process. This would identify best practice from different countries and collate it into a single document for discussion in ICES.

Action: STIG-MSP (EO) agreed to invite Roland Cormier to WKCMSP 2011 to present this paper.

b) Recommendation 1.1.1 Paper to be prepared by Olsen *et al* on *What are the tools used in natural and social sciences to develop MSP?* Erik Olsen present a draft table of content and outlined the need to build on the WKCMSP 2010 discussions to identify tools from scientific and grey in the very rapidly developing field of MSP. He asked for input from STIG and that it would be a joint authorship paper hopefully with input from a broad range of disciplines covering social, economic and environmental. In the discussion there was a support for the paper to tackle the conflicts of the different scale needed to implement an ecosystem based approach to MSP and the barriers to this approach from national boundaries. It was felt that ICES could influence this discussion from a scientific – both social and natural at a cross boarder level. The modified table of content is at Annex 1

Action: All to comment to EO and provide suggestions.

c) Questionnaire to EG Chairs

EN presented an update on the responses to the questionnaires sent to the WG by STIG-MSP in 2010. 28 WG replied and but there was an understanding that there were WG with valuable spatial information that had not. Looking and the replies it can be seen that it would be worth following up with some WG to gather more information and also that there were a number of groups working on similar topics that might benefit from an exchange of experiences, see Annex 2.

The need for a contact point for spatial data in ICES was identified and NH pointed out that the Data Centre were finalizing work on a GeoNetwork map inventory system that would do just that, see presentation by Hans below.

It was pointed out that we also need to collect information on modeling, the relationship between activities and impacts and how this information and science is brought into the decision making process.

Action: It was agreed that the some more work was needed on the analysis of the questionnaire responses and that some feedback and thanks be given to the WGs to show how their information was used and inform them about the GeoNetwork system.

WGDIM will also include a discussion on how to collect the information for the GeoNetwork – linked to action below.

d) Update on responses to the ToR sent to the Expert Groups

EO Introduced the recommendations from the WKCMSP 2010 and explained how these were translated to ToRs and sent to the ICES Working Groups to address during 2010. Of the reports from the 13 WGs that have been looked at, 5 have provided information on MSP. He also explained how the Science Plan was coded to track progress with the various objectives of the Plan in relation to the TORs of ICES EGs. MSP was given a code and there are 5 MSP related objectives in the Plan. These are coded 331 to 335:

331 Develop and evaluate integrated management procedures of the multiple uses of the oceans, in particular spatial planning tools.

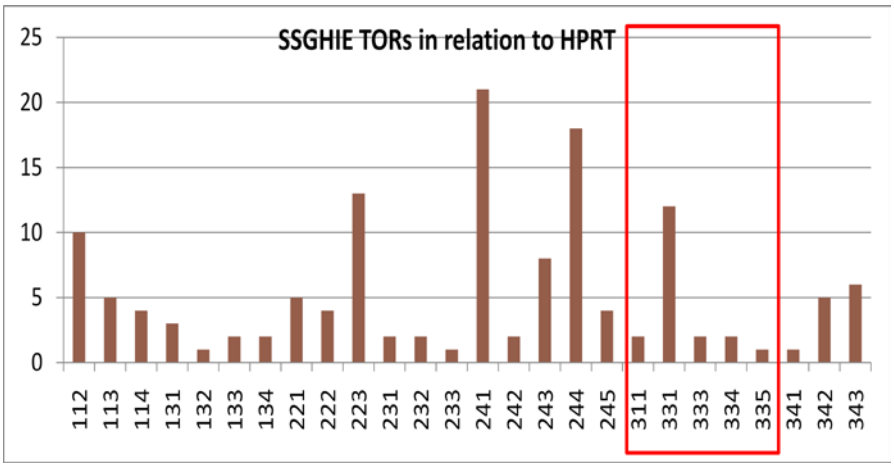
332 Predict benthic habitat spatial patterns based on a combination of geomorphological and oceanographic properties.

333 Utility of MPAs (with a range of sizes and spatial patterns) for diverse conservation objectives under Integrated Management.

334 Sensitivity of benthic habitats to disturbance and reference points on the limits to disturbance for a range of anthropogenic impacts.

335 Evaluate GIS methods with respect to the specific needs of marine spatial planning.

SCICOM has not finalized the coding and analysis of the TORs and EO only presented the results from the analysis of the SSGHIE group. From the EG TORs one can see that, there is work going on that deal 4 of the 5 MSP topics, with topic 331 being to most frequently addressed.



It was agreed that EO/NH/EN would prepare and analyses of the information from the questionnaire and the response to the ToR and provide feedback to the WGs and explain how the GeoNet will use this information to focus its efforts on compiling a map database.

3 Review of other MSP related work in ICES and in relation to other organizations

A round table update on MSP issues identified the follow:

- The ICZM/MSP regulatory assessment process seems to indicate that many stakeholders don't see the need for a new MSP directive and that the possibility of using the MSFD as a possible instrument for MSP should be explored.
- The IMP emphasis on Blue Growth to create jobs and economic opportunities will lead to more pressure on the marine environment
- A North Sea Task Forces of Carbon Capture and Storage (CCS) has been set up trilaterally between NL, UK and NR. The group is active since 2005 but in isolation from the others. Germany is interested in joining.
- Sweden is considering a proposal for a new MSP Act which if accepted will be adopted by end of 2011. The current discussions revolve around what knowledge is needed; cost, stakeholders, guidance and this will be finalized in July. A new agency responsible for MSP will be formed in July.
- There is a final Baltsea Plan conference planned for 12 Jan in Berlin.
- The EU Interreg research project "SEAGIS" is focused on the Quark area of the northern Baltic Sea and is trying to set up a validation system for the selection of areas for different uses such as exploration or conservation. This will look at collating GIS layers covering all human activities. In the next step these will be used to assess how human activities impact on the marine ecosystem.
- The Nordic Council have set up a group on ecosystem and human impacts.
- In the Baltic Region a joint HELCOM /VASAB WG on MSP was established in 2010 and has adopted a set of MSP principles. This group will meet on the 28th and 29th September to discuss the legislative basis for MSP and an ecosystem-based approach to MSP as well as progress within Baltic MSP projects including Plan Bothna.
- As part of the EC's preparatory action on MSP, Plan Bothna will develop transnational plan using some 130 GIS data sets, including include fisheries, shipping, renewable energy, MPA etc. It will look for overlaps and possible areas for conflict. Once this has been completed the project will now start looking at forward planning and would be happy to present their results to the suggested HELCOM/OSPAR/ICES WKCMSP 2011. The outputs will be the projects results and will have no official standing or commitment attached. There is a Plan Bothnia public stakeholder meeting planned for the 27th Sept in Helsinki and it is hoped that this will include a dialogue with other projects such as MAPNOSE from the North Sea.
- It was suggested that ICES could undertake a co-existence analysis of various human activities and give for example give spatial representation to future renewable energy targets versus MPA. ICES has a lot of data that would support such an analysis and could result in the recommendation of thresholds. In any such analysis some mechanism to deal with temporally dynamic activities or characteristics such as fishing or spawning areas must be considered.

- The European Topic Centre on Inland, Coastal and Marine waters (ETC/ICM) is supporting the European Environment Agency's (EEA) European wide Coastal Assessment Report 2012. The report will give an overview of human activities (pressures/impacts) in EU marine waters, coastal zones and the inland connections. Socio-economic issues will also be included in the report. The major focus of this work is the implementation of the MSFD and delivering GES. Harmonisation of data will facilitate EU wide and regional seas scale analysis. The deadline for deliverables to the EEA Coastal Assessment 2012 Report is 30 November 2011. As partner of the ETC/ICM, ICES is involved in this activity and is taking part in compiling data on competing activities, the ecosystem approach and integrated and cumulative assessments to get an overview of progress across the European Seas. Case studies include the Kattegat, Straits of Gibraltar and the German North Sea and first drafts of these case studies will be completed by June 2011. ICES is mainly providing the fisheries data and for the Kattegat case study fisheries data have been provided by DTU-Aqua in Denmark and Fiskeriverket (Department of Aquatic Resources; SLU-Aqua) in Sweden. One issue that has emerged during this work is the number of various different grid scales used and the EEA will bring forward a proposal to the EC that for the MSFD assessments a 1, 10 and 100 km2 grid should be used – this will be compatible with grids used on land.
- There are many overlaps between the work going on in the various different MSP research projects. The MESMA project has taken the initiative to bring together the coordinators of 7 EU-funded MSP-related research projects to coordinate their work on common research topics such as geonetworks, governance, legal issues and MSP tools. A follow-up meeting to discuss overlap at a work package level will be organised in September 2011. It is proposed to organise a joint MSP symposium with 3 or 4 of the projects in April 2013, to jointly announce the outcomes of these projects. ICES and the regional seas conventions will be kept informed.
- There has been no decision made on applying MSP in Poland but studies have suggested that it could be implement through byelaws.
- In Norway, the first 4 year cycle on the Barents Sea Plan has just been completed and a white paper passed in parliament last week. The main issue in the review was the opening of the area to oil and gas exploration and exploitation activities. It was decided that this would be reviewed after the next election. The white paper will be translated into English and will be placed on the SharePoint site when available.
- The review of 17 different MSP plans completed by NOAA has been placed on the meetings SharePoint site.

Presentation on ICES GeoNetwork and ICES Spatial Services (by HMJ)

The web GIS developments within the ICES Data Centre (ICES DC), is designed to serve all of the ICES community in publishing and sharing map layers and metadata. The ICES web GIS system was shown as a prototype system at the STIG-MSP meeting and is planned for official launch beginning of July 2011.

In order to support the developments towards marine spatial planning and integrated area-based science, the ICES DC in cooperation with STZ Geoinformatik in Rostock, has developed a web GIS system that can capture spatial layers including

metadata and make them discoverable and accessible for all users. It has been important to use best practices and widely accepted standards in the system. The metadata are stored in the ISO19115/19139 format. INSPIRE metadata requirements can be fulfilled using the system, but the required information has been kept to a minimum due to the wide scope of layers and uses expected in the system.

The developed system builds on GeoServer (web map services - http://map.ices.dk/geoserver) and GeoNetwork (metadata handling - http://geo.ices.dk/geonetwork) that are both open source projects. The system integrates their functionalities and creates the important linkage between the spatial datasets and their metadata.

The system has open access for all users, but in order to upload data and metadata the user will have to be registered. The collection of spatial layers can be searched based on geographic extent, keywords, category, title, etc. The GIS viewer allows layers to be viewed one at a time or in combination with the possibility to explore the attribute information of the spatial objects in the layers. All layers can also be accessed as web map services or downloaded for use in various GIS applications and other map clients.

The new web GIS system increases the use and usability of spatial layers being generated by ICES expert groups and it promotes increased exchange of spatial data between ICES expert groups and the marine community in general.

4 Review recommendations to SIASM by WGMPCZM in their 2011 report

Recommendation 3.5.1 proposing a joint session from WGMPCZM and STIG-MSP for the ASC 2012 on '*The use and misuse of science in MSP*.'

WGMPCZM has identified a problem that on occasion planning, policy and political decision makers cherry pick from scientific advice and evidence to support their decisions. WGMPCZM proposed the follow three topics for a theme session at the 2012 ASC.

- Approaches in assessing cumulative environmental effects or impacts and establishing management thresholds and targets.
- Application of Good Environmental Status to identify risks or providing guidance in setting marine spatial planning priorities.
- Risk to ecosystem goods and services as a means for setting management objectives.

STIG-MSP was supportive and made the following suggestions to WGMPCZM:

- that the WG amend the final bullet to 'the use of ecological risk assessment for setting management objectives' as this was clearer
- to make the abstract more explicit in particular the link to the MSFD and how the idea of misuse will be central to the discussion.
- to identify 3 conveners and modify the proposal to a full theme session rather than a poster session.
- to submit the proposal for a theme session to SCICOM for approval at the 2011ASC (due date 6 September)

Action: EO will inform SCICOM that STIG-MSP supports the proposal from WGMPCZM

Action: LA to inform WGMPCZM of the above suggestions, that STIG-MSP is supportive but that SIASM is an initiative with a limited lifespan and will not exist in 2012.

Recommendation 3.5.2 for *a workshop on simulating the development of MSP for large scale hypothetical wind farm development as discussed within STIG-MSP during the Lisbon workshop*.

This was discussed in Agenda Item 5 below.

Recommendation 4 on collaborative work concerning the review of methods for capturing fisheries information for inclusion in MSP (see ToR d for 2012), in particular by STIG-MSP providing information on relevant methods and data.

STIG-MSP identified the work being undertake in the ICM Topic Centre will provide information on this aspect as will the ICES work to be undertaken on Descriptor 3 during 2011 coordinated by the ICES MSFD Steering Group.

Recommendation 5: ICES adopts a workshop planned by WGMPCZM on QA as an ICES workshop. (specifics to be sent separately to the secretariat).

How do countries deal with QA in MSP and SEA – both in the process and a review of the plan itself. This should go the CIHAE – proposal could be decided at the ASC. Send proposal to EO through SSGHIE (following the ICES WK template).

Other issues – there is overlap between the two groups but it is a welcomed development as STIG-MSP has a limited life-span. WGMPCZM is a very active WG and meets next in March and would welcome participants from STIG.

5 Develop workshop proposal for a follow up to WKCMSP in Lisbon, 2–4 November 2011 hosted at IPIMAR

STIG MSP reflected on the WKCMSP 2011 proposals, the WGMPCZM proposals for a workshop on the practical application of MSP and the proposed ToRs from OSPAR. STIG was informed of discussions with HELCOM and OSPAR on the possibility of joint HELCOM/OSPAR/ICES workshop on MSP building on the proposal from WKCMSP 2011. Both HELCOM (HB) and OSPAR (EN) were also represented in the meeting and in light of the strong possibility of such a joint workshop, STIG-MSP focused on preparing a first draft plan for a joint HELCOM/OSPAR/ICES workshop at IPIMAR, Lisbon from 2–4 November 2011, see Annex 3. It was clearly understood that this is a first draft for such a joint workshop and that it will be furthered discussed by the relevant groups within OSPAR and HELCOM. STIG-MSP proposed that that the main objectives of such a joint workshop could be:-

- Demonstrate how HELCOM, OSPAR, and ICES can contribute and cooperate to further development of the process of ecosystem-based marine spatial planning
    - Reinforcing and extending the existing networks of MSP practitioners by sharing knowledge and experience between scientists, managers and planners

- Test out how ICES Spatial Facility & data from EGs, and similar facilities of other organizations (e.g. HELCOM and OSPAR) can be used in development of an MSP plan
- How can scientists contribute to the socioeconomic aspects of MSP development (e.g. Stakeholder involvement, setting socioeconomic objectives etc)

- Share knowledge on the development of MSP in the areas

6 Initial discussion on a strategy to continue the work when SIASM is completed early 2012 / Preparation of a final report in 2012

EO pointed out that no time has been set to end the initiative but it would seem an appropriate to consider the possibility of ending it around the end of 2011.

LA suggested that the profile of the WGMPCZM should be raised and requested to continue the work of STIG, however, WGMPCZM will need a strategic direction for this role. It was pointed out the WG itself will generate its own ToR and will get input from SCICOM if developing and finalising their ToRs.

STIG supports the involvement in some way of WGMPCZM in the continuation of the work started on MSP within ICES and to further develop strong links with the ongoing development in the Data Centre with respect to the GeoWeb services.

STIG strongly agrees that the joint HELCOM/OSPAR/ICES workshop in November 2011was a good way forward and suggested that the WS should consider how the three organisations could continue to work together and that possibly a joint HELCOM/OSPAR/ICES Working Group could be a means of doing this. STIG supports the transformation of the existing WGMPCZM into a joint WG or possibly to look at a new additional WG.

STIG-MSP invites HELCOM, OSPAR and ICES to further consider the how best to proceed and the possibilities of future collaboration. The involvement of land use planners in the Plan Bothnia project (Baltic Sea) has been a fruitful way to initiate dialogue across professional disciplines.

STIG-MSP before it winds up should develop an outreach strategy for developing the link with a broad range of maritime sectors, planners, and the education institutions.

7 AOB

It was agreed to tidy up the STIG-MSP SharePoint site. All relevant documents should be found on the main SharePoint site rather than on the underlying meeting sites. It was also agreed to enter all known MSP meetings/conferences etc into the calendar.

Action: EO and EN will handle this in collaboration with SAP.

Annex 1: List of Participants

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Annex 2: Table of Content for proposed paper on 'What are the tools used in natural and social sciences to de-velop MSP?'

Topic 1: Understanding Ecosystem Functioning

- 11 Climate change processes and predictions of impacts
- 12 Biodiversity and the health of marine ecosystems
- 13 The role of coastal zone habitat in population dynamics of exploited species
- 14 Fish life history information in support of EAM
- 15 Sensitive ecosystems (deep-sea, seamounts, arctic) and data-poor species
- 16 Integration of surveys and observational technologies into operational ecosystem surveys
- 17 Role of top predators (mammals, birds, and large pelagics) in marine ecosystems

Topic 2: Understanding of Interactions of Human Activities with Ecosystems

- 21 Impacts of fishing on marine ecosystems
- 22. Carrying capacity and ecosystem interactions associated with mariculture
- 23. Influence of development of renewable energy resources (e.g. wind, hydropower, tidal and waves) on marine habitat and biota
- 24. Population and community level impacts of contaminants, eutrophication, and habitat changes in the coastal zone
- 25 Introduced and invasive species, their impacts on ecosystems and interactions with climate change processes

Topic 3: Development of Options for Sustainable Use of Ecosystems

- 31 Marine living resource management tools
- 32 Operational modelling combining oceanography, ecosystem and population Processes
- 33 Marine spatial planning, effectiveness of management practices (e.g. MPAs), and its role in the conservation of biodiversity
- 34 Contributions to socio-economic understanding of ecosystem goods and services, and forecasting of the impact of human activities

Annex 2: Excel sheet of responses to questionnaire

Working Group	Question 1.What spatial data/maps for different ecosystem components (abiotic and biotic) does the EG process and/or produce?	Question 2. What tools/methods/models does the EG have that can be useful for spatial analysis?	Question 3. What spatial data/analysis useful for modeling sensitive areas (eg. spawning or high-productivity areas) does the EG have?	Question 4. What spatial data/analysis on human use of ecosystem goods and services does the EG have? (eg. Fishing, gravel	Question 5 (optional). Do you have suggestions on how the Strategic Initiative on Area-based Science and Management can be progressed to
Arctic Fisheries WG, AFWG	Maps on temperature, zooplankton, and fisheries. WDs also give maps showing survey data.	None in particular (as Erik Olsen is well aware of there are plans for making tools for evaluating effects of oil spill, and those will have a fin spatial	Surveys of spawning grounds, and distribution eggs and larvae are available for some stocks, but these are not really used by AFWG. Contact the institutes	fishing data (ref. question 1).	
SG on Data Requirements and Assessment of Baltic Sea Trout, SGBALANST	SGBALANST has compiled a database on sea trout streams of the Baltic countires. The data include biotic (e.g. average fish densities) and abiotic		See question 1. The database covers all major trout streams of the Baltic, however Helcom in the project Salar gathers further data and probably more		Not at the moment.
SG on Biological Characteristics as Predictors of Salmon Abundance, SGBICEPS	SGBICEPS has compiled time-series information on the biological characteristics of Atlantic salmon from 35 separate stocks (rivers) around the North Atlantic	SGBICEPS explored spatial patterns in the above data sets using different statistical techniques (e.g. z-zcores, meta analysis). Some limited life-cycle	SGBICEPS focused on analysis of the biological characteristics of both juvenile stages of salmon leaving freshwater and adult stages returning to	Nothing to offer in this area.	
SG on Integrated Monitoring of Contaminants and Biological Effects, SGIMC	Answering on behalf of SGIMC, we produce no maps. However, we do produce data assessment tools for environmental data that would allow other	The data assessment tools refer to levels of biological effects of contaminants that would indicate that conditions were or were not at background			
WG on the Application of Genetics in Fisheries and Mariculture, WGAGFM – Geir Dahle	The EG itself does not produce any data/maps for biotic components in different ecosystems, but members of the EG would poses data that might be	The WGAGFM is dealing with most genetic methods looking at population identification, structure, and interactions. In this aspect the EG is also working	The EG does not collect data, but members of the EG does have spatial data that might be very useful for modeling sensitive areas like spawning areas of	The EG does not have any data on human use of the ecosystem apart from the studies made by members or invited members on evolutionary effects of	
WG Baltic Salmon and Trout, WGBAST	To study causes behind variation in marine survival of salmon, the group uses data from WGIAB and WGBFAS to get a broad view on ecosystem	Quite detailed electrofishing data (from reproduction and nursery areas in freshwater) from different regions in the Baltic Sea. The assessment model	Data from electrofishing surveys at spawning and nursery areas in freshwater (including both densities of juveniles but also a lot of both biotic and abiotic	The group uses data on exploitation rate in different areas and by different fisheries, and these time series are kept in an EG database. Further spatial	There will probably be many positive outcomes following a successful implementation of the initiative, but it's important that biologically relevant
WG on Beam Trawl Surveys, WGBEAM	WGBEAM produces catch rates per species for a set of demersal fish species, current year and average over the survey period				
Baltic International Fish Survey WG, WGBIFS	None. Data is entered into DATRAS (trawl surveys) or FishFrame (acoustic surveys) and if any output is needed it is requested from these databases.	Only DATRAS and FishFrame	From trawl surveys: Two series by year of CPUE of recruiting year class of various species for a long time period in the Baltic area and Kattegat based on	Year class strength of various species	
WG on Biodiversity, WGBIODIV	In the future WGBIODIV will be looking at areas of high diversity for various taxa, as observed from existing surveys. There will also be an interest in	Uncertain. Membership of group can evolve in terms of ToRs	WGBIODIV will hopefully be involved in identifying areas of 'high biodiversity' in association with other EGs	None, but would like to be able to access such data	Collate internationally agreed indices of fishing effort (by gear) across areas in association with WGFTFB and the assessment working groups. Promote
WG in Crangon Fisheries and Life History, WGCRAN	Distribution of Brown shrimp abundance in the coastal area from Netherlands, Germany and Denmark since 1970 and for a shorter period from the		survey data for distribution of brown shrimp in late summer since 1970	integrated maps of distribution of brown shrimp fishing effort	
WG on the Celtic Seas Ecoregion, WGCSE	In WGCSE there are various national initiatives on going to map the spatial distribution of landings and fisheries that are reported and used by the EG in the	Spatial analysis in WGCSE is mainly using the following software: r, Surfer, ArcGIS, ICQI, server, http://icesjms.oxfordjournals.org/content/early/2010/0	At the moment the thematic maps of spawning & nursery areas have been produced using fishy cruise integration of high level survey information and expert	Mainly spatial distribution of fishing in VI and VII. Also information on the fine scale spatial extent of specific habitats e.g. Nephrops grounds. Nationally	Formation of a regional Workshop for VII and VI to review, guide and where possible integrate fisheries and other spatial data would be a good step forward.
WG on Elasmobranch Fisheries, WGEF	The Working Group on Elasmobranch Fishes (WGEF) produces species abundance maps for several elasmobranch species in the North Sea and	Models such as GAM and GLM are used to produce abundance indices/maps of *Squalus acanthias*.	We have limited data on spawning areas for certain elasmobranch species, mainly *Scyliorhinus canicula* and some ray species (*Raja undulata* and *Squatina*	WGEF has very little information on this topic. We have occasional, limited access to VMS data.	
WG on North Sea Cod and Plaice Egg Surveys in the North Sea, WGEGGS	produces species abundance maps for several elasmobranch species in the North Sea and Celtic Seas ecoregions, and the Bay of Biscay.	No special spatial analyses	Fish Egg and larval distributions in the North Sea in December to April 2004 & 2009		
WG on the Effects of Extraction of Marine Sediments on the Marine Environment					
WG on Fisheries Systems, WGFS	No sets	Since WGFS draws on a broad range of expertise, also on social sciences, WGFS can provide advice related to the advisory framework, the process of	None, but WGFS may provide some insight on the boundary problem (science-policy) related to defining sensitive areas.	None, but WGFS may have expertise to regard the data/analysis in a wider context.	Can we suggest something that involves WGFS in the process? Can we suggest something on the process itself? (in terms of cooperation, advisory
WG on the Assessment of Southern Shelf Stocks of Hake, Monk and Megrim, WGHMM	WGHMM: essentially none. The WG report displays area maps showing results from one survey (EVHOE) used in the assessment of some stocks.	WGHMM: the assessment models/software used for the 2 hake stocks (GADGET and Stock Synthesis) allow to consider differences in geographical areas in	WGHMM: none. The data used by the WG are aggregated at the geographical area corresponding to each stock. Only landings data are typically given at	WGHMM: Only landings data are typically given at ICES area level.	
WG on Integrated Coastal Zone Management, WGICZM	WGICZM does not process data or maps. The nature of the WG is to inform about and discuss conceptual issues of MSP and ICZM and report about progress	For tools, methods and models the same applies as for data and maps. Information on selected tools and methods and concepts is discussed in the WGICZM	see questions 1 and 2.	see question 1, ecosystem goods and services are discussed in WGICZM on the base of project material presented by WG members (sometimes on	It would useful to develop an overview on existing (spatial) data sources including metadata in ICES member states AND in the ICES data centre. In
WG on Marine Shellfish Culture, WGMASC	The WGMASC report mostly on biotic interactions. For this maps are sometimes used, but it is not a regular task of the EG.	The WGMASC uses GIS for spatial analysis.	Effects of shellfish mariculture are studied with carrying capacity models and deposition models.	Data on distribution of shellfish farming activities can be obtained via the EG members.	The establishment of a joint SCICOM/ACOM Strategic Initiative Group (STIG-MSP) and a Spatial Analysis Expert Group is a good idea. In addition,
WG on Mackerel and Horse Mackerel Egg Surveys	Distribution of mackerel and horse mackerel eggs in their different development stages during spawning periods and spawning area, temperature , salinity,	EG is planning and evaluating the mackerel and horse mackerel egg survey. The survey is a combined plankton and fishery investigation in order	See question 1	No data	
WG on Northeast Atlantic Pelagic Ecosystem Surveys, WGNAPES	Survey's undertaken within the Norwegian Sea and western British Isles produce: Hydrographic maps of published temperature and salinity at various depths;	Quality controlled geo-referenced data sets ; Centrally stored on an on-line database; Surveys fixed annually both temporally and spatially, allowing	Comprehensive biological data from trawl catches during spawning surveys (Blue whiting) ; Geo-referenced acoustic data detailing spawning grounds	Mainly fishing with limited amounts for aggregate extraction and off-shore renewables (Norwegian Sea survey)	Need more linkage between the wealth of hydrographic data collected during ICES surveys and the effects hydrographic conditions on fish
WG on Norhtwest Atlantic Regional Seas, WGNARS	WGNARS relies on spatially explicit data from ocean observation systems, ecosystem surveys, multibeam sonar, and habitat survey and associated maps.	Several 3-dimensional ocean circulation models (FVCOM, ROMS) are used to integrate data from ocean observation systems. Habitat data are	Habitat data are integrated using the Swept Area Seabed Impact (SASI) model to assess alteration of habitat from fishing effort. The SASI model includes	Spatially explicit fishery monitoring data (e.g., at-sea observers, study fleets) were analyzed to investigate patterns of biodiversity. Commercial logs, vessel	Provision of spatially explicit data, mapping tools and robust tools for spatial analysis. Classify the types of planning objectives set out in case studies, and
WG for North-east Atlantic Continental Slope Surveys, WGNEACS	The working group on NEA continental slope surveys (WGNEACS) produces spatial data and maps of amalgamated data from deepwater fisheries surveys	The group has worked towards developing common abundance indicators so that the spatial distribution of species can be pooled across surveys.	From the survey group there is data available on the distribution of particularly vulnerable deepwater species such as Orange Roughy and deepwater	There is a close interaction with WGDEEP on mapping fishing activities in relation to survey effort and fish species distribution, eg to verify that the	Normally supply changes with demand. Sofar ICES has not asked/been asked to provide integrated regional ecosystem advice above single species
WG on Pathology and Diseases of Marine Organisms, WGPDMO	Disease maps for fish and shellfish, utilising fish disease data submitted by ICES member countries to the ICES environmental database. Both for EU	ICES database, statistical analysis, assessment of fish health status using the Fish Disease Index (FDI), based on ICES statistical rectangles and specific	As above		There are a number of environmental monitoring programmes carried out by ICES/OSPAR/HELCOM member countries that have not yet been
WG on the Science Requirements to Support Conservation, Restoration and Management of Diadromous Species, WGRECORDS	Spatial distribution maps of redfish (s. mentella) in the Irminger Sea and Norwegian Sea (always) Maps of sea temperature at several depth horizons in the	There are no specific tools. Spatial representations are usually constructed using GIS	Same as above	This is not relevant to this EG.	Our EG lacks a database framework to assemble and archive survey data in a consistent and perennial manner. If data format and storage could be handled
WG on Multispecies Assessment Methods, WGSAM	routine maps of food habits, a map of ICES regions	the ICES food habits database is georeferenced as is most data held by the individual institutes. These data can be used to derive spatial patterns in natural	see above	N/A, as we're mostly focusing on models of fishing and ecology	Consider as many sectors and ocean uses as possible.
WG on Seabird Ecology, WGSE	Seabird distribution and abundance at sea throughout the year from surveys (NW Europe). Seabird (modelled) densities at sea (UK).	Indirect access to GIS and spatial analytical resources at parent institutions.	See above – seabird vulnerability by ¼ ICES rectangle. Otherwise, unsure.	None directly but could probably access oil and gas data, offshore renewable, aggregates data. Possibly VMS data for fisheries.	Need more time for this; and maybe better given as a ToR for relevant EGs.
Workshop on Understanding and quantifying mortality in fish early-life stages: experiments, observations, and models, WKMOR					

Green = useful data; yellow=possible; red=no data; clear=no response

Annex 3: Proposal for joint HELCOM, OSPAR and ICES workshop on MSP

DRAFT

Joint HELCOM, OSPAR and ICES
Workshop Multi-Disciplinary Case Studies of MSP

Dates and Venue

2–4 November 2011 at IPIMAR, Lisbon, Portugal

Objectives

- Demonstrate how HELCOM, OSPAR, and ICES can contribute and cooperate to further development of the process of ecosystem-based marine spatial planning
    - Reinforcing and extending the existing networks of MSP practitioners by sharing knowledge and experience between scientists, managers and planners
    - Test out how ICES Spatial Facility & data from EGs, and similar facilities of other organizations (e.g. HELCOM and OSPAR) can be used in development of an MSP plan
    - How can scientist contribute to the socioeconomic aspects of MSP development (eg. Stakeholder involvement, setting socioeconomic objectives etc)
- Share knowledge on the development of MSP in the areas
- Build a MSPCZM community of practitioners

Background

- Illustrates how all three organizations can contribute to the development of MSP plans in their region
- Scenario case-studies will illustrate how HELCOM, OSPAR and ICES expertise can be used and test how useful existing tools and products are
- To serve as a stress-test to see what are the main scientific and governance challenges facing development of MSP plans
- Follow-up to ICES WKCMSP workshop in Lisbon, Nov 2010

Organization

- Establish a HELCOM, OSPAR and ICES planning group for the WK (from ICES: Nixon, Abspoel and Olsen, HELCOM: Backer is the POC, OSPAR: Nixon and Kalker)
- WK to consist of three parts:
    - 1) A short (1/2 day) presentation of development of MSP within the HELCOM, OSPAR and ICES area
    - 2) A group discussion and reflection exercise where the participants share and discuss real-world challenges with developing MSP

- 3) Simulation scenarios for a case study of MSP for the Kattegat area run as a role-game with professional moderators

Presentation of state of MSP

Some suggested/possible topics/speakers:

- Swedish MSP legislation/plans
- Links between MSFD and MSP/CZM
- + 2-3 more talks

Group discussions and reflections of real-world challenges with developing MSP (inter-vision)

For this session the participants will be asked to submit a short memo pointing out 3 or 4 of the most urgent challenges they face relating to the implementation of MSP to the rest of the group prior to the meeting. This should also be accompanied by a short CV/ work description. The memo should describe what you want to learn from others and how they can help you. Participants also indicate which topics they would be willing to share experience on and give review to the input of others. This will allow the organizers draw up a specific program and select appropriate groups for the discussions. The participants are split in small groups of max. 8 to 10 people. The time for the session is shared equally among the participants who present their case and get replies, suggestions, questions and comments from the other people in the group.

A short comprehensive briefing on inter-vision will be sent to the participants of the workshop by early October.

Simulation scenarios for a Kattegat MSP case study

- **Aim of case study**: Learn from the process. Using the Kattegat as a case study to learn about the developments in the wider European setting and get a better understanding of roles and requirements of planners, policy-makers, stakeholders and scientists/science in a MSP/CZM process.
- Scenarios/case studies to develop/play out at the workshop. Use MSFD and achieving GES and other governance structures as frames for the case studies:
  - A) Priority to renewable energy production
  - B) Priority to establishing MPAs and protections of vulnerable components and habitats
  - C) Priority to opportunities for coastal communities (fisheries, aquaculture)
- Simulate the development of spatial plans plan for the Kattegat area
  - Data available from a new EEA Coastal Assessment due in 2011
    - Can use all ICES, HELCOM, OSPAR and HARMONY and any other data sets
  - Kattegat area relevant for all workshop co-sponsors
- Structure of case studies (game)
  - WK split in groups, one per scenario (ideally not more than 10 people per scenario)

  - 2 people pr. Interest-group (Fishermen, scientists, industry, managers etc)
  - Need help from facilitator to plan, prepare and facilitate the case studies
  - All participants will get information beforehand and must prepare for their role
- Output from scenario simulations
  - The proposed solutions to problems faced by the groups
  - Identify and document main areas of conflicts and challenges and how these can/could be resolved/avoided/managed and mitigated
  - Identify how can OSPAR, HELCOM and ICES contribute to handling these challenges
  - Consider and document the implication of the MSFD to MSP and *vice versa*

Program

2 November

10:00	Start of Workshop
10:00 – 12:00	Presentations on the development of MSP in HELCOM, OSPAR and ICES
12:00 – 13:30	Lunch
13:30 – 16:30	Group discussions and reflections session (inter-vision): Sharing and discussion of challenges for practitioners (small groups w moderator)
16:30 – 18:00	Preparations for the Case Studies/Simulation (plenary information initial discussions). First meeting of the Simulation groups.
20:00	Groups meet for working dinner (if possible this will be funded by the organizers)

3 November

09:00 – 16:00	Groups run case studies/simulations
16:00 – 18:00	Groups sum up experiences from case studies/simulations
20:00	Workshop dinner (pay on your own)

4 November

09:00- 11:00	Groups present experiences from case studies
11:00 – 13:00	Plenary discussions and summing up
13:00	End of workshop

Practical issues / tasks

- Define learning objectives for the simulation-game "**Ma**ter**P**ractice the Kattegatt"
- Prepare data and presentation tools (ICES Spatial facility, EEA, HELCOM, OSPAR)
  - Upload data to WMS facilities (ICES, HELCOM, OSPAR)

    - Need (GIS) competent person who can run web-based tools in groups
    - Contact data-center and EG to prepare maps of distribution/abundance etc for the Kattegat
- "Game-master" for case study – invite consultant/university researchers (LA to investigate)
    - One for each group?
    - The roles in the cases studies –prepare notes/background data
    - Define and describe the scenarios for each group (by September)
- Use remaining ICES SIF funds (54 000 DKK) to fund participation and consultants at WK
- Seek additional funding of about 20 000 EUR. Possibilities for additional funding from OSPAR, HELCOM and other. Inquire to find other sponsors for the WS (DG MARE, DG ENVIRONMENT, individual MSs, Nordic Council of Ministers and others)
- Access to projectors, screens and other meeting equipment
- Have poster and hand-outs ready by ASC-2011 to solicit for participants

Expected Outcomes

- Joint report from meeting
    - Learn from the process of case studies and group discussions and reflections (inter-vision) to increase knowledge and awareness of all stages of the MSP development process. Use Kattegatt scenario to learn about the developments in the wider European setting (eg. How MSFD and industry pressures influence the development of MSP and how MSP can support implementation of the MSFD)
    - Identify main areas of conflicts and challenges
        - How can OSPAR, HELCOM and ICES contribute to handling these challenges
        - Feed back through the ICES, OSPAR and HELCOM systems
- Publish a Scientific article: "Reflections on the simulation exercise for MSP plan for the Kattegat area"
- Reinforced network of practitioners of MSPCZM